

We claim:

1. A pattern inspection method for: capturing images, by scanning an object to be inspected on which a plurality of identical patterns are arranged, of the plurality of the patterns; detecting the positional information of the images of neighboring identical patterns; determining the quantity of correction, by which the positional relation of the images of the neighboring identical patterns is corrected, based on the detected positional information; and comparing the images the positional relation of which has been corrected based on the quantity of correction, wherein the quantity of correction is determined based on the information containing the positions of the images at multiple 5 separate places in the pattern.

2. A pattern inspection method, as set forth in claim 1, wherein the multiple separate places include the vicinities of both ends in the pattern arrangement to be 10 inspected.

3. A pattern inspection method, as set forth in claim 1, wherein the detection of the positional information of the images, the determination of the quantity of correction and the comparison of the images are carried out in parallel with the scan for capturing 15 the images to be used for the subsequent comparison, and wherein the determination of the quantity of correction and the comparison of the images are started after the capture of the images of the two neighboring patterns is completed.

4. A pattern inspection method for: capturing images, by scanning an object to be inspected on which a plurality of identical patterns are arranged, of the plurality of the patterns; detecting the positional information of the images of the identical patterns in each row; determining the quantity of correction, by 30 which the positional relation of the images of the neighboring patterns is corrected, based on the detected 35

5 positional information; and comparing the images the positional relation of which has been corrected based on the quantity of the correction, wherein the quantity of correction is determined based on the information containing the positions of the images of the multiple separate patterns in each row in the pattern arrangement.

10 5. A pattern inspection method, as set forth in claim 4, wherein the multiple separate patterns include the patterns in the vicinities of both ends in each row.

15 6. A pattern inspection method, as set forth in claim 1, wherein the detection of position, the determination of the quantity of correction and the comparison of the images are carried out in parallel with the scan for capturing the images to be used for the subsequent comparison, and wherein the determination of the quantity of correction and the comparison of the images are started after the capture of the images of the patterns in each row is completed.

20 7. A pattern inspection method, as set forth in claim 1, wherein each pattern has a cell pattern repeated at a predetermined pitch, and wherein the cell comparison for comparing the neighboring cell patterns in each pattern is made immediately after the capture of the images of the neighboring cell patterns and in parallel 25 to the capture of the images to be used for the subsequent cell comparison.

30 8. A pattern inspection apparatus comprising: an image capturing section for capturing images, by scanning an object to be inspected on which a plurality of identical patterns are arranged, of the plurality of the patterns; an image storage section for storing captured images; a positional information detecting section for detecting the positional information of the images of neighboring identical patterns; a correction quantity 35 determining section for determining the quantity of correction, by which the positional relation of the images of the neighboring identical patterns is

corrected, based on the detected positional information; and a pattern comparison section for correcting the positional relation based on the quantity of correction and comparing the corrected images, wherein the 5 correction quantity determining section determines the quantity of correction based on the information containing the positions of the images at multiple separate places in the pattern.

9. A pattern inspection apparatus, as set forth in 10 claim 8, wherein the multiple separate places include the vicinities of both ends in the scanning direction of the pattern.

10. A pattern inspection apparatus, as set forth in 15 claim 8, wherein the detection of the positional information of the image by the positional information detecting section, the determination of the quantity of correction by the correction quantity determining section and the comparison of the images by the pattern comparison section are carried out in parallel to the 20 capture of the images to be used for the subsequent comparison by the image capturing section and the storage of the images, and wherein the image storage section has a capacity for storing images of at least two patterns, and after the capture of two neighboring images by the 25 image capturing section and the storage of the images are completed, the correction quantity determining section and the pattern comparison section start the determination of the quantity of correction and the comparison of the images.

11. A pattern inspection apparatus comprising: an 30 image capturing section for capturing images, by scanning an object to be inspected on which a plurality of identical patterns are arranged, of the plurality of the patterns; an image storage section for storing captured 35 images; a positional information detecting section for detecting the positional information of the images of the identical patterns in each row; a correction quantity

5 determining section for determining the quantity of correction, by which the positional relation of the images of the neighboring patterns is corrected, based on the detected positional information; and a pattern  
10 comparison section for correcting the positional relation based on the quantity of correction and comparing the corrected images, wherein the correction quantity determining section determines the quantity of correction based on the information containing the positions of the images at multiple separate places in each row in the  
15 scanning direction in the pattern arrangement.

12. A pattern inspection apparatus, as set forth in claim 11, wherein the multiple separate patterns include the patterns in the vicinity of both ends in each row.

15 13. A pattern inspection apparatus, as set forth in claim 11, wherein the detection of the positional information of the image by the positional information detecting section, the determination of the quantity of correction and the comparison of the images by the  
20 pattern comparison section are carried out in parallel to the capture of the images to be used for the subsequent comparison by the image capturing section and the storage of the images, and wherein the image storage section has a capacity for storing pattern images of at least one  
25 row, and after the capture of the pattern images of each row by the image capturing section and the storage of the images are completed, the correction quantity determining section and the pattern comparison section start the  
30 determination of the quantity of correction and the comparison of the images

14. A pattern inspection apparatus, as set forth in claim 8, wherein each pattern has a cell pattern to be repeated at a predetermined pitch, wherein a cell comparison section for making a comparison between the neighboring cell patterns in each pattern is included, and wherein the cell comparison section makes a comparison between the neighboring cell patterns in  
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parallel to the capture of the images to be used for the subsequent comparison after the capture of the cell pattern images, which are the object for the immediately subsequent comparison, by the image storage section.

5        15. A pattern inspection apparatus comprising: an image capturing section for capturing images, by scanning an object to be inspected on which a plurality of patterns having a cell pattern to be repeated at a predetermined pitch are arranged, of the plurality of patterns; and  $m$  ( $m$  is an integer larger than 1) processing units having an identical configuration, wherein each processing unit comprises an image storage section for storing captured images, a positional information detecting section for detecting the positional information of the images of the identical patterns in each row, a correction quantity determining section for determining the quantity of correction, by which the positional relation of the images of the neighboring identical patterns is corrected, based on the detected positional information, a pattern comparison section for correcting the positional relation based on the quantity of correction and comparing the corrected images, and a cell comparison section for making a comparison between the neighboring cell patterns in each pattern, and wherein each of the  $m$  processing units carries out, for each row and in a sharing manner, any of the capture and storage of the images, the cell comparison and the detection of positional deviation, and the determination of the quantity of correction and the pattern comparison, and take turns for each capture and storage of the images.

35        16. A pattern inspection apparatus, as set forth in claim 15, wherein the correction quantity determining section determines the quantity of correction based on the information containing the positions of images of multiple separate patterns in each row in the scanning direction in the pattern arrangement.

17. A pattern inspection apparatus, as set forth in claim 16, wherein the multiple separate patterns include the patterns on both ends in each die.